Onzen

Technical Guide

Onzen + Sea Salt = Natural Salt Water care made easy.

Table of Contents

What is Onzen? .....Pg 2

Onzen Warranty .....Pg 2

Onzen Start-Up Guide .....Pg 3

Using Sodium Test Strips .....Pg 6

Troubleshooting Flow Chart .....Pg 7

Conducting a “Smoke” Test .....Pg 8

FAQs .....Pg 10

What is Onzen?

Onzen is an all-natural, salt-water softening and maintenance system.

What does it do?

- Softens water
- Clarifies water
- Breaks down contaminants with ozone, automatically
- Adds back up sanitizing agents, automatically.

What are the benefits?

- Makes skin feel soft and smooth
- Makes water look sparkling clean
- Reduces contact with harsh chemicals
- Dramatically reduces time and money needed to maintain spa water
- Reduces impact to the environment
  - fewer trips to the spa store for supplies
  - less packaging wasted on chemical containers
  - less industrial waste produced making spa chemicals

How does it work?

- Natural mineral sea salt blend is added to water when spa is filled
- Ozone continuously breaks down contaminants in the water
  - Unique hybrid ozone technology makes more ozone without corrosion
- Sanitizing agents are produced and mixed with water, automatically
- Output is easily controlled to suit very low to very high use

How is it better than other salt systems?

- Combines ozone and salt electrolysis into one system.
- Ozone is generated using hybrid ozone technology which produces ozone without corrosion.
- Salt electrodes are long lasting Titanium, not fragile graphite, for extra durability.
- Sanitizer cell does not require flow, which saves energy and prevents overheating.
- Wider range of acceptable salt level for easier set up.
- User can easily check sanitizer cell function by looking at water (bubbles indicate function).
- Onzen salt blend is made from genuine Dead Sea salt, which is famous for its therapeutic qualities.

Onzen Warranty

Arctic Spas® warrants the Onzen natural salt-water care system against malfunctions due to defects in materials and workmanship for 2 years from the original date of delivery to the original customer on factory installed systems. This warranty includes parts and on site labor necessary for the repair.

Spa water quality and other damages resulting from water imbalance are specifically not covered by this warranty.

Warranty work must be completed by authorized Arctic Spas® retailers only. No labour warranty is provided by Arctic Spas for Onzen systems installed on site, only faulty parts are covered.

Disclaimer: this is not an automatic water care system. The system is set up for typical hot tub use. "Boost" may be needed to supplement sanitizer generation with higher hot tub use.

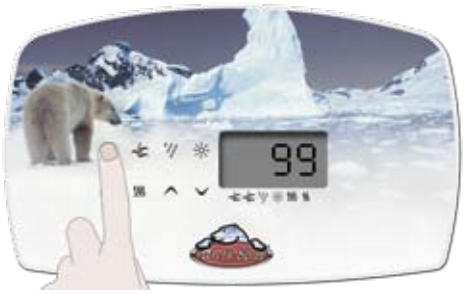
The spa user is ultimately responsible for maintaining proper sanitary water conditions.

Use of salt other than Arctic Pure sea salt blend will damage the components and void the warranty. The Arctic Pure blend has been developed to protect Onzen components from damage and the use of alternative salt blends will be easily detected by technicians.

Onzen Start - Up Guide

STEP 1

Fill your spa through the filter intake as shown. If you have sediment or high mineral content a “carbon filled pre-filter”, as pictured, can help. **(this is optional and will prolong the fill time)**.



STEP 2

Once your spa is filled, turn the power on and run the pumps until all of the air works its way out of the lines.

STEP 3

Test Calcium hardness. Level should be 50 ppm or less. If high, lower with a calcium remover product.

Test Alkalinity. It should be 100 max. If high, lower it with pH Down or muriatic acid. Do not raise Alkalinity!

NOTE: Skipping these steps on Start-up can cause scaling problems and cloudy water that may not be covered under warranty.

NOTE: Use all products according to directions on the bottle.

STEP 4

Test pH. Levels should be between 7.2 – 7.8. If pH is high, (over 7.8) add Adjust Down.

NOTE: Use all products according to directions on the bottle.

STEP 5

Dissolve 1 lb of salt crystals in a pail of hot water.
(2 lb for the Arctic Ocean)

Onzen Start - Up Guide

STEP 6

Slowly pour the dissolved salt from the pail into the spa water. Wait 1 hour. Then test and adjust alkalinity and pH levels if needed. Refer to steps 3 and 4 for correct levels.

STEP 7

Repeat “STEP 5” and “STEP 6”. On a 7’ spa, this is the final pound of salt. After testing and adjusting alkalinity and pH levels, you will now need to test sodium levels. See “Using Sodium Test Strips” (pg 6) for details. If sodium levels are low, you can add salt crystals directly into spa (without dissolving), 1/2 cup at a time (using cup provided) until desired sodium level is reached (between 2000 – 3000 ppm).

STEP 8

Repeat “STEP 5” and “STEP 6” for an 8’ spa. You will then test the sodium levels (Refer to “STEP 7” for more details).

Model	1st Salt Dose	2nd Salt Dose	3rd Salt Dose	Estimated Total Salt required	Estimated impact of adding ½ pound of salt (225g)
Summit	1Lb (450g)	1Lb (450g)	1Lb (450g)	3Lb (1350g)	120 ppm
Klondiker	1Lb (450g)	1Lb (450g)	1Lb (450g)	3Lb (1350g)	124 ppm
Frontier	1Lb (450g)	1Lb (450g)	1Lb(450g)	3Lb (1350g)	120 ppm
Kodiak	1Lb (450g)	1Lb (450g)	1Lb (450g)	3Lb (1350g)	113 ppm
Tundra	1Lb (450g)	1Lb (450g)	1Lb (450g)	3Lb (1350g)	98 ppm
Arctic Fox	1Lb (450g)	3/4Lb(337g)	-	1 ¾ Lb(777g)	173 ppm
Cub	1Lb (450g)	1Lb (450g)	-	2Lb (900g)	132 ppm
Glacier	1Lb (450g)	1Lb (450g)	-	2Lb (900g)	138 ppm
Yukon	1Lb (450g)	1Lb (450g)	-	2Lb (900g)	121 ppm
Arctic Ocean	2Lb (900g)	2Lb (900g)	2Lb (900g)	6Lb (2700g)	37 ppm

STEP 9

Go into “Low Level” settings* and set CP to “4”.

*1. Hold filter button for 20 seconds, until “bL” displays.

2. Scroll through to “CP __” by repeatedly pushing the filtration key and change value with arrow key to “CP 4”

STEP 10

Exit the “low level setting” menu by repeatedly pushing the filter button until the screen resets.

STEP 11

Wait until the water temperature is at least 80º F (27º C). Conduct a “Smoke Test” to verify that sanitizer is being produced.
See “CONDUCTING A SMOKE TEST” (pg 8) for details.

STEP 12
You should have sanitizer readings within 24 hours. If levels get too high, turn this setting down. If you are not getting any readings, turn setting up.

On Start-up, add one capful of “Boost” to establish a sanitizer residual.

Use “Boost” to sanitize the water after heavy usage, or if the Chlorine level is too low.
Important: Always test and balance the pH and Chlorine levels before each spa use.

* Expect the pH to increase slowly over each week and when it gets too high use ADJUST DOWN to correct it.
High Ph will cause premature failure of the system, cloudy water, and decreased effectiveness of the sanitizer.

The Onzen system works best with low levels of calcium. Check your calcium levels monthly to ensure long life of the spa equipment and maximum user enjoyment.

On average, you will need to change the filter every 3 months, and replace the water twice a year. However, this can vary with use and conditions.

Using Sodium Test Strips

STEP 1

Take a sample of water from the spa in a small cup (about 1” full)

STEP 2

Place the lower end of the strip into the water. **IMPORTANT**: Keep top half of strip **COMPLETELY** dry to get an accurate reading.

STEP 3

Leave strip in water for 3 – 5 minutes until yellow band at top of strip turns dark.

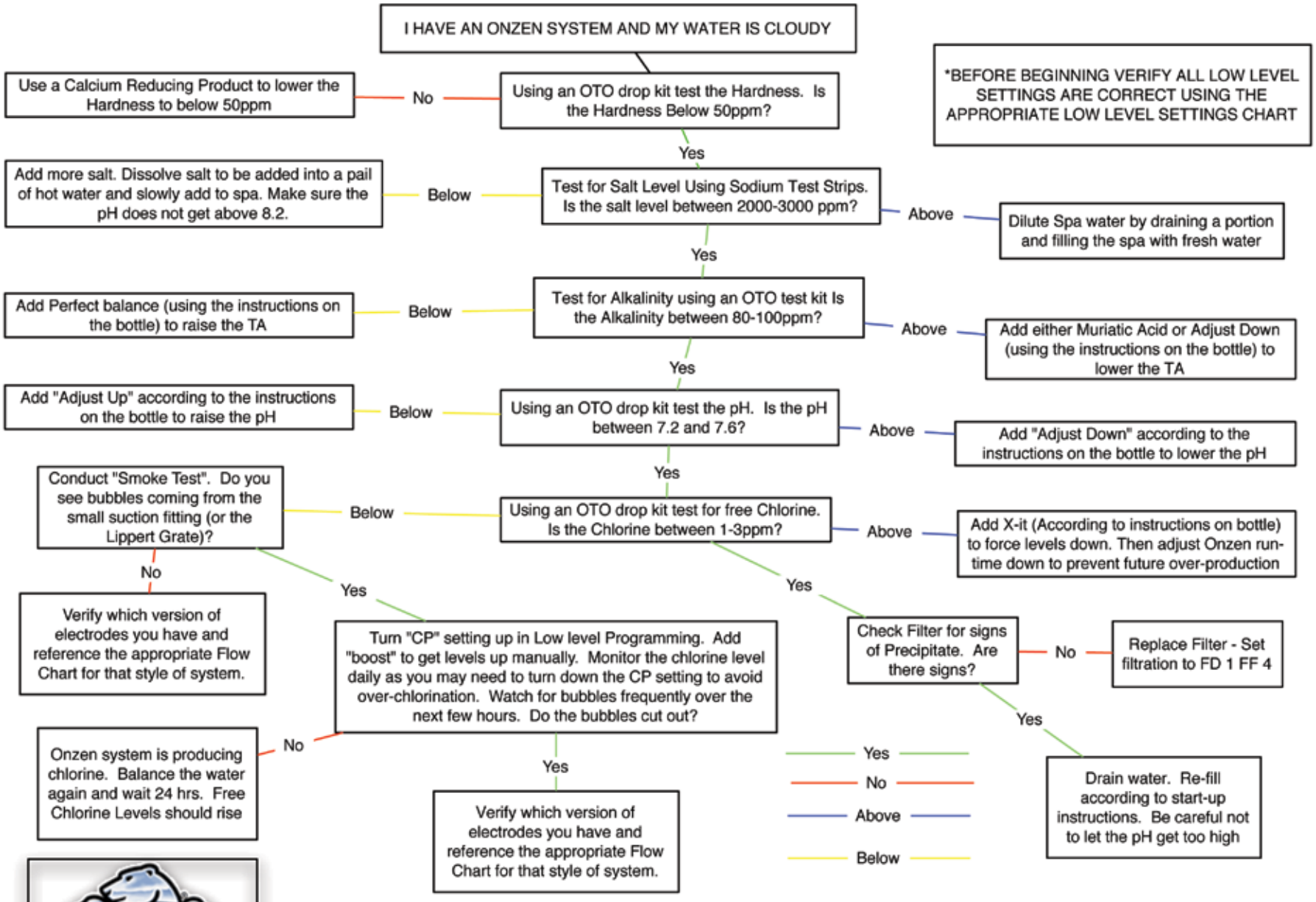
STEP 4

Obtain your reading: where top of white peak falls on the number scale. Read top of peak to the nearest 0.2 division.

STEP 5

Correspond that number with the numbers on the bottle.

A level of 2000-3000 ppm is ideal.
*add or dilute water as needed.
*salt concentration will only change if water is splashed or drained out. Do not add salt unless this test confirms the level is below the ideal range.


I HAVE AN ONZEN SYSTEM AND MY WATER IS CLOUDY
*BEFORE BEGINNING VERIFY ALL LOW LEVEL SETTINGS ARE CORRECT USING THE APPROPRIATE LOW LEVEL SETTINGS CHART
Using an OTO drop kit test the Hardness. Is the Hardness Below 50ppm?
No
Use a Calcium Reducing Product to lower the Hardness to below 50ppm
Yes
Test for Salt Level Using Sodium Test Strips. Is the salt level between 2000-3000 ppm?
Below
Add more salt. Dissolve salt to be added into a pail of hot water and slowly add to spa. Make sure the pH does not get above 8.2.
Above
Dilute Spa water by draining a portion and filling the spa with fresh water
Yes
Test for Alkalinity using an OTO test kit Is the Alkalinity between 80-100ppm?
Below
Add Perfect balance (using the instructions on the bottle) to raise the TA
Above
Add either Muriatic Acid or Adjust Down (using the instructions on the bottle) to lower the TA
Yes
Using an OTO drop kit test the pH. Is the pH between 7.2 and 7.6?
Below
Add "Adjust Up" according to the instructions on the bottle to raise the pH
Above
Add "Adjust Down" according to the instructions on the bottle to lower the pH
Yes
Using an OTO drop kit test for free Chlorine. Is the Chlorine between 1-3ppm?
Below
Conduct "Smoke Test". Do you see bubbles coming from the small suction fitting (or the Lippert Grate)?
Above
Add X-it (According to instructions on bottle) to force levels down. Then adjust Onzen run-time down to prevent future over-production
No
Verify which version of electrodes you have and reference the appropriate Flow Chart for that style of system.
Yes
Turn "CP" setting up in Low level Programming. Add "boost" to get levels up manually. Monitor the chlorine level daily as you may need to turn down the CP setting to avoid over-chlorination. Watch for bubbles frequently over the next few hours. Do the bubbles cut out?
No
Onzen system is producing chlorine. Balance the water again and wait 24 hrs. Free Chlorine Levels should rise
Yes
Verify which version of electrodes you have and reference the appropriate Flow Chart for that style of system.
Yes
Check Filter for signs of Precipitate. Are there signs?
No
Replace Filter - Set filtration to FD 1 FF 4
Yes
Drain water. Re-fill according to start-up instructions. Be careful not to let the pH get too high
Yes
No
Above
Below
Arctic Spas
ARCTIC SPAS CLOUDY WATER/ONZEN TROUBLESHOOTING FLOW CHART

Conducting a “Smoke” Test

How to Test if Sanitizer is being Produced

(ONZEN SALT SYSTEMS ONLY)

STEP 1

Turn the temperature below your actual temperature by 2 degrees.

STEP 2

Set filtration to zero by pushing the filter key and changing **FD** to “**0**” (using the down arrow key).

STEP 3

Hold the filtration key down for 20 seconds until “**bL 0** OR **bL 1**” is displayed.

STEP 4

Scroll through the LL settings by pressing the filtration key until it reads “CP X”. (“x” will be a value between 0 & 6)

STEP 5

Make sure this is not set to CP “0”.

STEP 6

Continue scrolling through the LL settings by repeatedly pushing the filter key until the pack resets.

STEP 7

The software revision will flash for 5 seconds.

STEP 8

Do not push a button, as this will delay the output for 40 minutes. If a button is pushed at this stage, start the test from step 1.

STEP 9

Locate the Onzen fitting in the footwell of the spa. There should be a fine mist of bubbles coming from the fitting within about 15 seconds.

STEP 10

Small bubbles indicate that sanitizer is being produced. If there are no bubbles, something may be wrong. Call your dealer for a service call. (Note: you can still sanitize your spa with granular chlorine!)

STEP 11

If you see bubbles, sanitizer is being produced. Leave it to produce for the next few hours and make sure it does not shut off.
If you do not see these “smoky” bubbles call for service.

STEP 12

After a visual check, you can turn your filtration back up (**FD 1 FF 4** is recommended) and reset your temperature.

FAQs

1) How do I know if the Onzen system is working?

Conduct a "smoke test" (pg 8). This procedure activates the Onzen System while de-activating the filtration pump so you can see the mist of gas bubbles produced by the Onzen System.

2) What should I do if it fails the "smoke test"?

First, confirm you have the correct concentration of salt in the water using sodium test strips (pg 6) Then, start maintaining your water manually using "Boost" granular chlorine to sanitize and Adjust Up/Adjust Down to balance pH. Continue to do this daily until the system is repaired by an authorized service technician. * Keep enjoying your hot tub!

3) What should I do if the chlorine levels are too high?

Turn the Onzen output down (decrease "CP" settings). Unless you added granular chlorine or shock to the water high chlorine levels mean the system is staying on too long for your circumstances. It may take a day or two for levels to normalize, or you can speed this process up by using a chlorine neutralizer, such as "X-it".

4) What should I do if the pH keeps increasing?

Confirm that your alkalinity is at the recommended level and reduce it manually with 'Adjust Down'. **This is normal**, all hot tub salt systems cause pH to increase.

5) Will the salted water damage my lawn?

This is very unlikely. The recommended concentration of salt is 2000-3000 ppm, which is about 10% of the concentration of sea water.

6) Why is my water a bright yellow, or bright green, or a rusty colour suddenly?

This can happen if the pH gets too high. Lower the pH using 'Adjust Down'. High pH is a sign that the onzen output may be turned up too high, so you may need to adjust the onzen output
After balancing the pH and adjusting the onzen output wait about 48 hours. If the colour of the water does not normalize you may need to replace the water.
* Keep an eye on the pH and adjust it weekly to avoid this problem in the future.

7) What is the typical amount of maintenance I need to do with Onzen?

1) Change the water twice a year.
2) Change the filter 4 times a year.
3) Adjust the pH once a week.
4) Check Calcium level monthly to ensure it is in the target range
5) Check the alkalinity weekly to make sure it is in the target range
6) Adjust the Onzen output if hot tub use changes significantly.
7) Adjust the chlorine levels using "Boost" granular chlorine, after heavy use or if the Onzen output is too low.

8) What should I do if the spa is not going to be in use or when I go on vacation?

(please see FAQ #3)

9) Should I use Best Defense or another scale remover?

It is recommended that calcium be removed from the water in advance rather than adding a scale remover after the fact.

10) What is the impact of phosphates on the Onzen system?

High levels of phosphates (above 250 ppb) may reduce the effectiveness of sanitizer output.

11) What happens if my water becomes cloudy?

i. Test the water for chlorine content. If the level is low add Boost.
ii. Check your filters as they may require replacement
iii. Check you pH level you may need to adjust you pH down

12) Can I use softened water with my Onzen system?

Yes. You probably have a water softener because your water is quite hard. Your water-softener removes calcium from your water and helps you achieve water with calcium content near the target of 50 ppm

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